

CLAIMS

1. A power use circuit breaker which is connected in an electric circuit and operates to interrupt current
5 flowing through the electric circuit comprising:

an electrical resistance generating unit which adds an electrical resistance in the electric circuit during interruption of current and causes to attenuate current to be interrupted and a vacuum circuit breaker
10 which is connected in electrically series with the electrical resistance generating unit and operates to interrupt the attenuated current.

2. A power use circuit breaker including a current
15 interrupting circuit which is connected in an electric circuit and operates to interrupt current flowing through the electric circuit and a current conducting circuit which is connected in parallel with the current interrupting circuit and is opened prior to
20 the current interrupting circuit during interruption of current so as to transfer conducting current to the current interrupting circuit, wherein:

the current interrupting circuit is provided with an electrical resistance generating unit which adds an
25 electrical resistance in the electric circuit during interruption of current and causes to attenuate current to be interrupted and a vacuum circuit breaker

which is connected in electrically series with the electrical resistance generating unit and operates to interrupt the attenuated current.

5 3. A power use circuit breaker according to claim 1,
wherein the electrical resistance generating unit is
an arc generating switching unit which is closed
during current conduction to show a substantially
negligible small value of electrical resistance and is
10 opened during current interruption so as to generate
an arc and to form an arc resistance circuit.

4. A power use circuit breaker according to claim 2,
wherein the electrical resistance generating unit is
15 an arc generating switching unit which is closed
during current conduction to show a substantially
negligible small value of electrical resistance and is
opened during current interruption so as to generate
an arc and to form an arc resistance circuit.

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5. A power use circuit breaker according to claim 3,
wherein the electrical resistance generating unit is
provided with a container which contains gas of which
pressure is raised by heating through arcing and the
25 pressurized gas is blasted toward the arc.

6. A power use circuit breaker according to claim 4,

wherein the electrical resistance generating unit is provided with a container which contains gas of which pressure is raised by heating through arcing and the pressurized gas is blasted toward the arc.

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7. A power use circuit breaker according to claim 2, wherein the current conducting circuit is provided with a current conducting switching unit, and the vacuum circuit breaker and the current conducting
10 switching unit are coupled through an operating mechanism having a dead band with regard to operation stroke so as to open the vacuum circuit breaker after having opened the current conducting switching unit which permits an interlocked switching operation of
15 the current conducting switching unit and the vacuum circuit breaker with a single driving unit.

8. A power use circuit breaker according to claim 3, wherein the current conducting circuit is provided
20 with a current conducting switching unit, and the vacuum circuit breaker, the arc generating switching unit and the current conducting switching unit are coupled through an operating mechanism having a dead band with regard to operation stroke so as to open the
25 arc generating switching unit to generate an arc after having opened the current conducting switching unit and thereafter to open the vacuum circuit breaker

which permits an interlocked switching operation of the current conducting switching unit, the arc generating switching unit and the vacuum circuit breaker with a single driving unit.

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9. A power use circuit breaker according to claim 4, wherein the current conducting circuit is provided with a current conducting switching unit, and the vacuum circuit breaker, the arc generating switching unit and the current conducting switching unit are coupled through an operating mechanism having a dead band with regard to operation stroke so as to open the arc generating switching unit to generate an arc after having opened the current conducting switching unit and thereafter to open the vacuum circuit breaker which permits an interlocked switching operation of the current conducting switching unit, the arc generating switching unit and the vacuum circuit breaker with a single driving unit.

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10. A power use circuit breaker according to claim 8, wherein the current conducting switching unit and the arc generating switching unit are interlocked like a unitary body.

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11. A power use circuit breaker according to claim 9, wherein the current conducting switching unit and the

arc generating switching unit are interlocked like a unitary body.

12. An electric circuit arrangement for an electric
5 power generating plant, comprising a power use circuit
breaker according to one of claims 1 through 11 is
connected between an electric power generator and a
main power transformer so as to permit separation of
the main power transformer and a house transformer
10 from the electric power generator.

13. A power use circuit breaker comprising:

a first and a second main terminal conductor;

a pair of current carrying conductor bars running
15 in parallel each other between said first and second
main terminal conductors, each includes a first
conductor bar piece electrically connected to said
first main terminal conductor, a second conductor bar
piece connected to said second main terminal conductor
20 and a bridging conductor bar piece disposed between
said first and second conductor bar pieces so as to
connect and disconnect between said first and second
conductor bar pieces;

a vacuum bulb disposed between said pair of
25 current carrying conductor bars, a stationary rod of
said vacuum bulb is electrically connected to said
first main terminal conductor via said first conductor

bar pieces;

an arc generating switching unit disposed between said pair of first and second main terminal conductors, said arc generating switching unit
5 includes a cylindrical thermo puffer container having a bottom and a flange at the open end and around the outer circumference thereof, a stationary arc contact attached to the flange so as to surround the opening of said cylindrical thermo puffer container, an
10 insulative puffer nozzle likely attached to the flange so as to surround said stationary arc contact and a movable arc contact disposed movable with respect to said stationary arc contact;

a movable operation plate carrying said bridging
15 conductor bar pieces and said movable arc contact;

a U shaped supporting conductor supporting said vacuum bulb at one leg thereof and said arc generating switching unit at the other leg thereof and electrically connecting a movable rod of said vacuum
20 bulb and said stationary arc contact of said arc generating switching unit;

a coupling plate disposed between said two legs of said U shaped supporting conductor and being secured to an outer end of said movable rod of said
25 vacuum bulb;

a coil spring disposed between said flange of said cylindrical thermo puffer container of said arc

generating switching unit and said coupling plate so as to urge said movable rod toward said stationary rod in said vacuum bulb;

an operation lever mechanism connected to said
5 movable operation plate; and

a coupling mechanism which couples said movable operation plate with said coupling plate with a predetermined dead band.